

H. E. Anthony,
Bolt-Heading Machine,
Patented June 19, 1866.

N^o 55,597.

Fig. 2

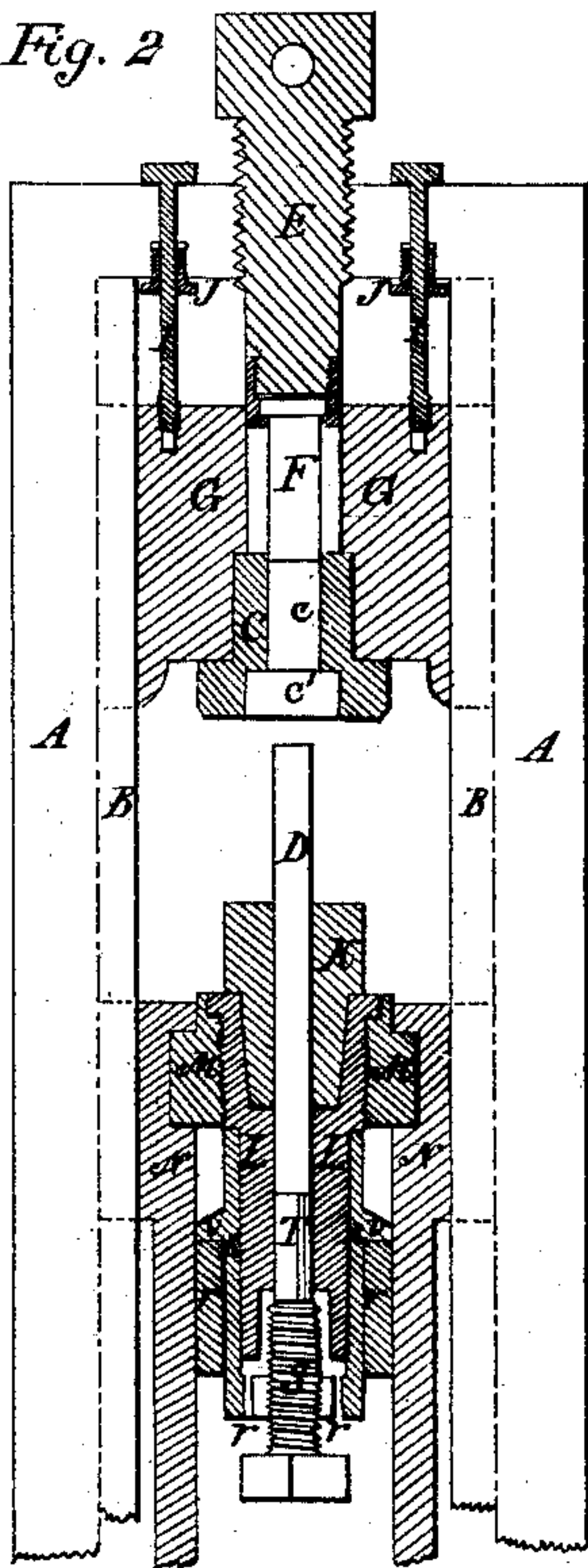


Fig. 1

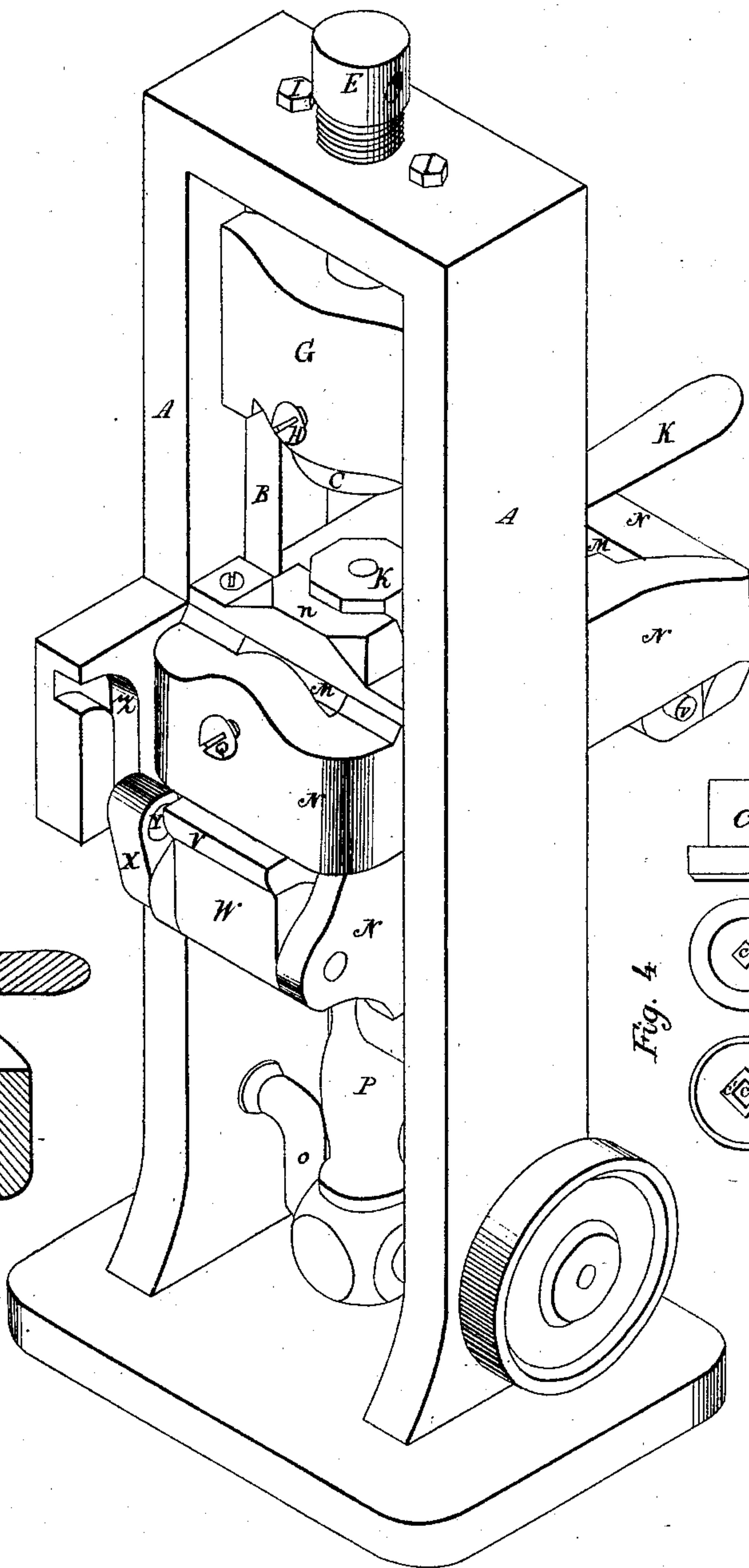


Fig. 3

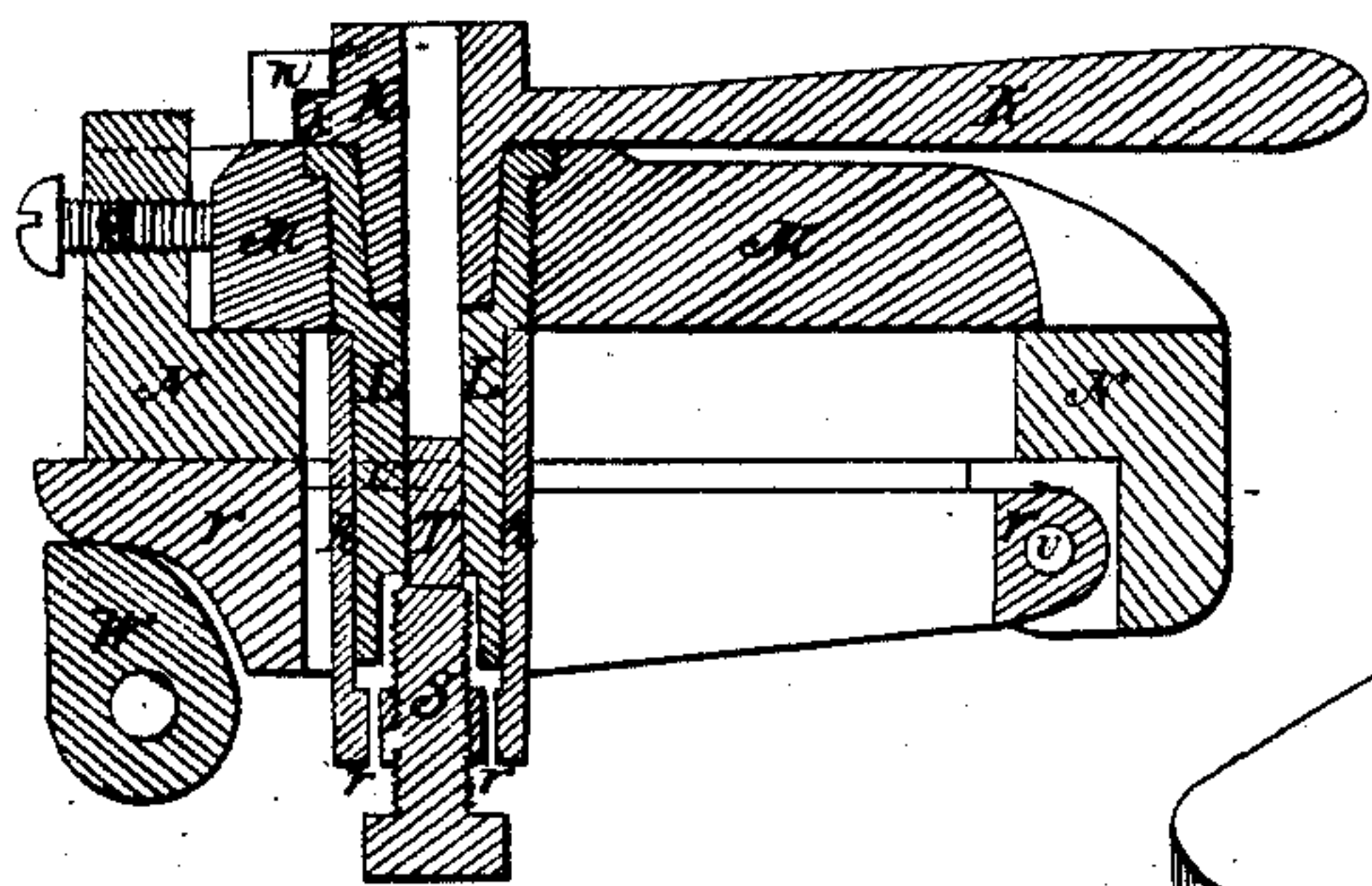
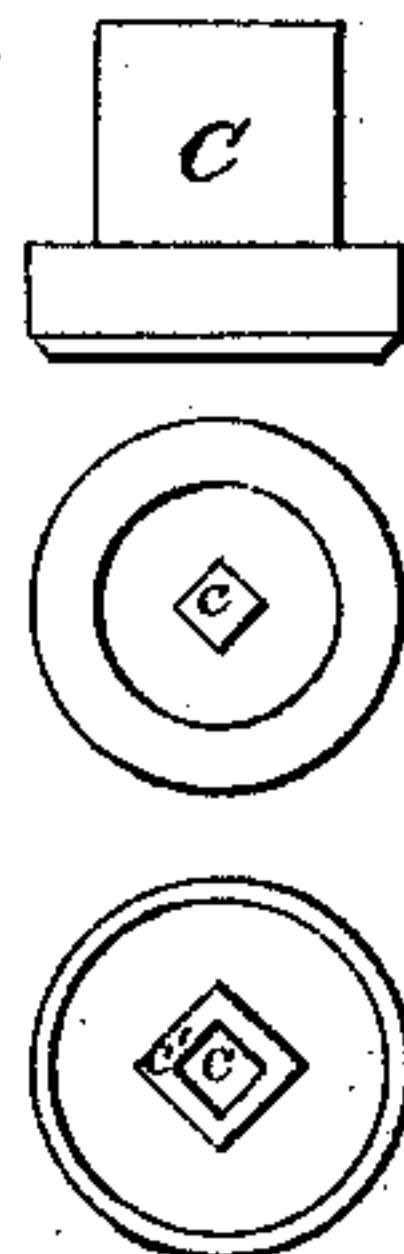


Fig. 4



Witnesses:
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Inventor:
Henry E. Anthony

UNITED STATES PATENT OFFICE.

HENRY E. ANTHONY, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN BOLT-HEADING MACHINES.

Specification forming part of Letters Patent No. 55,597, dated June 19, 1866.

To all whom it may concern:

Be it known that I, HENRY E. ANTHONY, of Providence, in the county of Providence and State of Rhode Island, have invented an Improved Bolt-Heading Machine; and I do hereby declare that the following is a full and exact description, reference being had to the accompanying drawings, making a part of this specification.

The nature of my invention consists in confining the stock from which the head of the bolt is to be formed at a point above the heading-chamber, so that it may be upset and spread out equally in all directions, and also in relieving the pressure from the opposite end of the bolt after it is partially headed, in order that any surplus material may be forced out of the heading-chamber into the shank of the bolt, thereby relieving the machine from the heavy strain caused by its continuous motion after the heading-chamber has been entirely filled.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 represents a perspective view of the machine; Figs. 2 and 3, sectional views; Fig. 4, views of the heading-die.

Fig. 2 represents a vertical section of the upper portion of the machine. A is the frame, to which are attached the slides B B, which serve to guide the parts which hold the die C and the bolt D in their motions up and down. The screw E carries upon its lower end the square punch F, the connection between the two being formed by a swivel-joint, so that the screw may be turned without causing the punch to revolve. This screw serves to adjust the punch to the proper height. The lower end of this punch enters the upper square chamber, *c*, of the heading-die C, various views of which are also shown in Fig. 4. This die is secured to the sliding die-holder G by the screw H. (Shown in Fig. 1.) The vertical range of the die-holder is controlled and regulated by the bolts I I and screw-thimbles J J.

The bolt D, which is to be headed, is held in the hand-tool K, a projection of which enters a cavity in the upper end of the tube L, which is screwed into the sliding piece M. The piece M slides in the frame N, to which

motion is imparted by the crank O and connecting-rod P. (Shown in Fig. 1.)

The screw Q (shown in Figs. 1 and 3) is used to adjust the motion of the sliding piece M to a point which will bring the bolt, when inserted in the hand-tool, exactly under the die C.

Upon the lower part of the tube L is placed the thimble R, with a screw, S, at its lower end. Small holes *r r* are also made, through which dirt is allowed to escape. This thimble has two projections, U U, upon its opposite sides, which rest upon the lever V, which is hung at the point *v* and raised and lowered by the cam W, which is operated by the arm X and pin Y moving in the groove Z. (Shown in Fig. 1.)

T is a short plug resting upon the screw S, and is used in connection with the screw to gage the length of the bolt by filling up the hole in which it is placed, plugs of different lengths being provided for that purpose. This plug is furnished with one or more grooves to allow the dirt to fall into the chamber which contains the upper end of the screw S, and thence through the holes *r r*.

The cap *n*, which is fastened to the frame N, serves to hold the tool K by slipping over the lip *k* when the sliding piece M is placed in contact with the screw Q. The piece M slides back far enough to allow a red hot bolt to be inserted in the tool K. It is then to be forced up in contact with the screw Q, which brings the bolt D exactly under the die C. Now, the crank O being set in motion, the lower sliding frame, N, with all the attached parts, are raised, carrying the upper end of the bolt D into the upper square chamber, *c*, of the die C, when the upper surface of the hand-tool will bring up against the lower end of the die, thereby completely closing the heading-chamber *c'*. Now, as the upward motion of the lower frame continues, carrying with it the die C and its holder G, the upper end of the bolt is forced, by the stationary punch F, into the heading-chamber *c'*, at the same time being supported by the sides of the chamber *c*. Now, when the head is nearly formed the pin Y of the arm X reaches the curved portion of the groove Z, causing the arm and cam to be turned outward, thereby lowering the outer end of the lever V. The thimble R, which supports the pin T, moves with it, leaving the

lower end of the bolt entirely free, so that the pressure caused by the upward motion of the frame N is now exerted upon the under side of the head, tending to fill out the corners and to force any surplus stock down through the heading-chamber into the shank of the bolt. As the crank continues to turn the frame N falls away from the die, when the headed bolt is removed from the machine by means of the hand-tool K. In this manner bolts can be made with round, square, or other shaped heads, according to the form of the chambers in the die C.

The heading-chamber may be made in the hand-tool K, a collar of suitable size, forming the chamber c, being inserted in the place of the die. A cam may also be used instead of a crank in driving the machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a swivel-punch, F,

with the die or collar which confines the bolt at a point above the heading-chamber, substantially as described.

2. Removing the thimble R and pin T, or any other equivalent device which may be used to support or confine the lower end of the bolt after such bolt has been partially headed, in order to allow any surplus stock to be forced from the upper chamber down through the head of the bolt, substantially as described.

3. The sliding die-holder G, operating substantially in the manner described.

4. The combination of screw E and swivel-punch F, operating substantially as described.

5. The manner of securing the hand-tool by the cap n, substantially as described.

HENRY E. ANTHONY.

Witnesses:

SOCRATES SCHOLFIELD,
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